

Applicants note that the drawings were objected to under 37 C.F.R. §1.83(a) as failing to show every feature of the invention as specified in the claims. In particular, it was stated that the first portion of the polarizing film being displaced from the light source along the first axis and the second portion of the reflective polarizing film being displaced from the first light source along the optical axis should be shown in a drawing or canceled from the claims. Claim 6 has been amended to indicate that the second portion of the reflective polarizing film is displaced from the reflective imaging display unit along the optical axis.

Claims 1, 12, and 13 are rejected under 35 U.S.C. §102 (b) as being anticipated by Handschy et al (U.S. Patent No. 5,596,451) (Handschy '451). Claims 1 and 12 are rejected under 35 U.S.C. §102 (b) as being anticipated Minoura et al. (EPO #0 492 636) (Minoura). Claims 1 and 12 are rejected under 35 U.S.C. §102 (e) as being anticipated by Schehrer et al (PCT Publication No. 99/34246).

The rejection under Schehrer is improper. The present application was filed before November 29, 2000, and was not voluntarily published, therefore the pre-AIPA (American Inventors Protection Act) version of 35 U.S.C. § 102(e) applies. See, for example, "Examination Guidelines for 35 U.S.C 102(e)(2) as amended by the American Inventors Protection Act of 1999", 1243 OG 1037. According to the pre-AIPA version of 35 U.S.C. § 102(e), only a US patent application that issues as a patent may be used as prior art. Schehrer is not a US patent application and has not issued as a US patent. Instead, Schehrer is a PCT publication and is, therefore, inapplicable as a reference under the pre-AIPA 35 U.S.C. § 102(e). Therefore, the rejection under Schehrer is improper. Applicants respectfully request that this rejection be withdrawn.

Handschy '451 teaches a projection system having an illumination arrangement (34) that directs light into a polarization cube (48). The light passes through the cube to a spatial light modulator (36) which is located on the other side of the cube from the illumination arrangement. Image light reflected by the spatial light modulator is deflected by the cube to a mirror (42). The image light also double-passes a quarter-wave plate so that the image light reflected by the mirror is directed through the cube to the viewer (24).

Minoura teaches a system having a light source (2041) that directs light to a polarization beamsplitter (2046). The polarization beamsplitter directs light to a cross dichroic prism 2048 that splits the incoming light into red green and blue bands, each of which is directed to a respective reflection liquid crystal panel (2051). The panels impose an image on the incident light by spatially modulating the polarization of the incident light. The light in the different color bands is recombined at the cross dichroic prism and then is transmitted through the polarization beamsplitter to a projection lens 2052.

The invention of amended claim 1 is directed to an illuminated display device, that has a first light source disposed on a mount having a mount surface. The first light source directs light generally along a first axis. A reflective image display unit is disposed on the mount surface with an optical axis substantially parallel to the first axis. A reflective polarizing film is disposed to direct light from the first light source to the reflective image light display unit.

To anticipate a claim, the reference must teach every element of the claim. "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). "The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). Therefore, all claim elements, and their limitations, must be found in the prior art reference to maintain a rejection based on 35 U.S.C. §102. Applicants respectfully submit that neither reference teaches all the elements of claim 1, and therefore each reference fails to anticipate claim 1.

In particular, neither reference teaches that the first light source and the reflective image display unit are mounted on the first surface of the mount. Such an arrangement permits the light source and image display unit to sit side by side on the same board or substrate, as is described in the present Specification at page 7, line 31 - page 8, line 9.

On the other hand, Handschy '451 teaches a light source that is disposed on one side of a polarization splitting cube and a liquid crystal panel on the other side of

the polarization splitting cube. Clearly, such an arrangement does not permit the light source and the reflective image display unit to both be mounted on the same surface.

In addition, Minoura shows a reflective display unit that is separate from the light source, and is silent about mounting the two on the same surface.

Accordingly, since neither reference teaches all the elements of claim 1, claim 1 is not anticipated by the prior art.

Dependent claims 12 and 13, which depend from claim 1 and further define the invention of claim 1, were also rejected as being anticipated by Handschy '451 and claim 12 was rejected as being anticipated by Minoura. While Applicants do not acquiesce with the particular rejections to these dependent claims, it is believed that these rejections are moot in view of the remarks made in connection with independent claim 1. Therefore, dependent claims 12 and 13 are also in condition for allowance.

Claim 12 is directed to a reflector disposed to direct light from the first light source to the reflective polarizing film layer. Claim 13, which depends from claim 12, is directed to at least one of the reflector and the reflective polarizing film being curved at least one dimension to form a curved reflector.

It is stated in the Office Action that Handschy teaches the reflector as element (42). In fact, Handschy fails to teach the reflector disposed to direct light from the first light source to the reflective polarizing film layer. Instead, Handschy's light source (36) illuminates the reflective polarizer directly, without any intervening reflector. Handschy's reflector directs light that has passed through the reflective polarizer, back to the reflective polarizer. Accordingly, Handschy fails to teach the elements of claim 12.

Minoura teaches a reflector that reflects light to the reflective polarizer, which reflects light to the reflective image light display. In the Office Action, it is stated that the reflector is element (2049) or element (2050). However, elements 2049 and 2050 are color reflecting surfaces that are used to separate the light into different colors before being incident on the image display units (2051R, 2051G and 2051B). These reflecting surfaces are not, however, disposed to reflect light from the light source to the polarizing beamsplitter. Instead, they reflect light from the polarizing beamsplitter to the image display unit, and from the image display unit back to the polarizing

beamsplitter. Accordingly, the reflectors (2049 and 2050) cannot be considered to be the reflector of claim 12.

Another reflector (2042) is illustrated in FIG. 20. This reflector is used to collect the light from the light source 2041. However, the light that propagates along the axis from the light source is not reflected by the reflector (2042). That light that is reflected by the reflector (2042) is not projected along the axis of the light source. Accordingly, the reflector (2042) cannot be considered to be the reflector of claim 12.

Thus, neither Minoura or Handschy '451 teach the reflector of claim 12, and claim 12 is not anticipated.

Regarding claim 13, it was noted with regard to claim 12 that Handschy's reflector (42) could not be considered to be the reflector of claim 12. Handschy's reflector (42) appears to be curved, but Handschy '451 does not teach the use of a curved reflector between the light source and the reflective polarizer, nor a curved reflective polarizer. Accordingly, claim 13 is not anticipated by Handschy '451.

Claim 2 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Handschy '451 in view of Handschy et al. (U.S. Patent No. 5,808,800) (Handschy '800). It is stated in the Office Action that Handschy '451 does not teach a curved reflective polarizer, but that Handschy '800 teaches that it is known to provide a curved reflective polarizer for reducing the bulk and weight of a display system.

Three criteria must be met to establish a *prima facie* case of obviousness. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference. Second, there must be a reasonable expectation of success. Finally, the prior art reference, or combination of references, must teach or suggest all the claim limitations. MPEP § 2142. Applicants respectfully traverse the rejection since the prior art fails to disclose all the claim limitations.

Handschy '800 fails to rectify the deficiency of Handschy '451 discussed above, and does not teach or suggest a first light source disposed on a mount surface and directing light generally along a first axis, and a reflective image display unit disposed on the mount surface with an optical axis substantially parallel to the first axis.

Accordingly, the proposed combination of references fails to teach or suggest all the limitations of claim 2, and claim 2 is not obvious in view of the proposed combination of references, and is patentable.

Claims 2-9 and 13-16 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Minoura or Schehrer. Schehrer is an improper reference, as is discussed above. It is stated in the Office Action that Minoura teaches all the subject matter claimed except for the curved polarizing beamsplitter. It is also stated that use of a curved polarizing beamsplitter was known and that it would have been obvious for one of ordinary skill in the art to use a curved polarizing beamsplitter for the purpose of reducing the bulk and weight of a display system, or to provide for light concentration, uniform light transmission and/or aberration correction. In an earlier rejection, the Examiner relies on Handschy '800 as evidence that it was known to use a curved polarizing beamsplitter. No other evidence is provided in the Office Action to support the assertion that it was known to use a curved polarizing beamsplitter, and so this rejection is understood to be based on the combination of Minoura and Handschy '800.

Claims 2-9 and 13-16 depend from, and further define, allowable claim 1. Accordingly, claims 2-9 and 13-16 are also allowable over Minoura.

Regarding claim 4, Handschy '800 only shows a curved polarizing beamsplitter that is curved in one plane, the plane of the device. Handschy '800 does not teach or suggest that the beamsplitter is curved in the plane out of the figure. Accordingly, The proposed modification of Minoura fails to teach or suggest with a radius of curvature lying parallel to a plane formed by the first axis and an axis orthogonal to both the first axis and the displacement direction. Thus, the cited art fails to teach or suggest all the elements of claim 4.

Regarding claim 5, the cited art fails to teach or suggest that the curved polarizer is curved in two directions. In particular, the cited art fails to teach or suggest a reflective polarizing film that is curved with a first radius of curvature lying in a first plane and with a second radius of curvature lying in a second plane perpendicular to the first plane. Accordingly, claim 5 is not obvious in view of the cited art.

Regarding claim 6, Minoura fails to teach or suggest a first portion of the reflective polarizing film being displaced from the first light source along the first axis and a second portion of the reflective polarizing film being displaced from the reflective image display unit along the optical axis, where the first axis and the optical axis are parallel. Therefore, claim 6 is not obvious in view of the cited art.

It follows from the lack of teaching of the elements of claim 7 that claims 7-9, which further define the first and second portions of the reflecting polarizer, that the elements of these claims are likewise not taught or suggested by the cited art.

Regarding claim 13, it was stated above, with reference to claim 12, that Minoura fails to teach a reflector disposed to direct light from the first light source to the reflective polarizing film layer. Claim 13 depends from claim 12, and so the proposed combination of references fails to teach or suggest a reflector as claimed in claim 13. Accordingly, the cited art also fails to teach or suggest all the elements of claim 13, and claim 13 is not obvious in view of the cited art.

Claims 14-16 depend from claim 13, which is allowable, and further define the reflective polarizer. As was discussed above with respect to claims 4 and 5, the cited art fails to teach that the polarizing beamsplitter is curved with a radius of curvature out of the plane of the Handschy '800's Figure 11. Accordingly, the cited art fails to teach or suggest the elements of claims 15 and 16. Accordingly, claims 14-16 are also allowable.

New claims 36-38 have been added. these claims fall within the elected invention. No new matter has been introduced, and these claims are supported by the disclosure. For example, at the very least, claims 36 and 38 are supported by Figures 12 and 13, and claim 37 is supported by the disclosure at page 2, lines 2-3.

In view of the amendments and reasons provided above, it is believed that all pending claims are in condition for allowance. Applicant respectfully requests favorable reconsideration and early allowance of all pending claims.

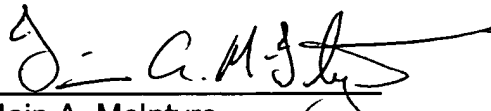
If a telephone conference would be helpful in resolving any issues concerning this communication, please contact Applicant's attorney of record, Iain A. McIntyre at 952-253-4110.

Respectfully submitted,

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**Appendix A**  
**Marked Up Version of the Entire Claim Set Currently Being Considered**

1. (once amended) An illuminated display device, comprising:  
a first light source disposed on a mount having a mount surface and directing light generally along a first axis;  
a reflective image display unit disposed on the mount surface with an optical axis substantially parallel to the first axis; and  
a reflective polarizing film disposed to direct light from the first light source to the reflective image light display unit.
2. (unchanged) A device as recited in claim 1, wherein the reflective polarizing film is curved in at least one dimension.
3. (unchanged) A device as recited in claim 2, wherein the optical axis of the reflective image display unit is laterally displaced from the first axis in a displacement direction and the reflective polarizing film is curved with a radius of curvature lying parallel to a plane formed by the first axis and the displacement direction.
4. (unchanged) A device as recited in claim 2, wherein the optical axis of the reflective image display unit is laterally displaced from the first axis in a displacement direction and the reflective polarizing film is curved with a radius of curvature lying parallel to a plane formed by the first axis and an axis orthogonal to both the first axis and the displacement direction.
5. (unchanged) A device as recited in claim 2, wherein the optical axis of the reflective image display unit is laterally displaced from the first axis in a displacement direction and the reflective polarizing film is curved with a first radius of curvature lying parallel to a plane formed by the first axis and the displacement direction and is curved with a second radius of curvature lying parallel to a plane



formed by the first axis and an axis orthogonal to both the first axis and the displacement direction.

6. (amended) A device as recited in claim 2, wherein a first portion of the reflective polarizing film is displaced from the first light source along the first axis and a second portion of the reflective polarizing film is displaced from the [first light source] reflective image display unit along the optical axis.

7. (unchanged) A device as recited in claim 6, wherein the first portion of the reflective polarizing film is curved.

8. (unchanged) A device as recited in claim 6, wherein the second portion of the reflective polarizing film is curved.

9. (unchanged) A device as recited in claim 6, wherein both the first and second portions of the reflective polarizing film are curved.

12. (unchanged) A device as recited in claim 1, further comprising a reflector disposed to direct light from the first light source to the reflective polarizing film layer.

13. (unchanged) A device as recited in claim 12, wherein at least one of the reflector and the reflective polarizing film is curved in at least one dimension to form a curved reflector.

14. (unchanged) A device as recited in claim 13, wherein the optical axis of the reflective image display unit is laterally displaced from the first axis in a displacement direction and the reflective polarizing film is curved with a radius of curvature lying parallel to a plane formed by the first axis and the displacement direction.

15. (unchanged) A device as recited in claim 13, wherein the optical axis of the reflective image display unit is laterally displaced from the first axis in a displacement direction and the reflective polarizing film is curved with a radius of curvature lying parallel to a plane formed by the first axis and an axis orthogonal to both the first axis and the displacement direction.

16. (unchanged) A device as recited in claim 13, wherein the optical axis of the reflective image display unit is laterally displaced from the first axis in a displacement direction and the reflective polarizing film is curved with a radius of curvature lying parallel to a plane formed by the first axis and the displacement direction and is curved with another radius of curvature lying parallel to a plane formed by the first axis and an axis orthogonal to both the first axis and the displacement direction.

36. (new) A device as recited in claim 1, wherein the first light source and the reflective image display are disposed on the mount surface in a coplanar manner.

37. (new) A device as recited in claim 1, wherein the mount is a substrate common to the first light source and the reflective image display.

38. (new) A device as recited in claim 1, wherein the first light source and reflective image display are mounted side by side on the mount surface.